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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/653,281	08/31/2000	Kevin L. Beaman	M4065.0278/P27899-0818	4745

7590

05/28/2002

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EXAMINER

BOOTH, RICHARD A

ART UNIT

PAPER NUMBER

2812

DATE MAILED: 05/28/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/653,281

Applicant(s)

BEAMAN ET AL.

Examiner

Richard A. Booth

Art Unit

2812

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 May 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-45 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-45 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

The finality of the office action mailed 2-12-02 has been withdrawn in favor of the newly imposed rejection indicated below.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily published under 35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

Claim 1-2, 6, 15-17, 21, 30-32, 36 and 45 are rejected under 35 U.S.C. 102(e) as being anticipated by Wang et al., U.S. Patent 6,376,309 B2.

Wang et al. shows the invention as claimed including forming a tunnel oxide 404 on a substrate 402; forming a first conductor 406 over the tunnel oxide 404; forming an insulating layer 410 over the first conductor layer, the insulating layer comprising a first oxide layer over the first conductor layer, a nitride layer over the first oxide layer, and a second oxide layer over the nitride layer, wherein the second oxide layer is formed by

oxidizing said nitride layer with an ambient containing atomic oxygen to a thickness of fifty angstroms (see column 3, lines 39-54); forming a second conductor layer 412 over the insulating layer; etching at least the first conductor layer, the second conductor layer, and the insulating layer, thereby defining at least one stacked structure (see Figure 3).

Note with regard to claims 6, 21, and 36, the hydrogen and oxygen present when forming the second oxide layer will react to form steam.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 3-5, 11-14, 18-20, 26-29, 33-35, and 41-44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wang et al., U.S. Patent 6,376,309 B2.

Wang et al. is applied as above but lacks anticipation of the time and temperatures of the formation of the second oxide and the use of either a single, batch, rapid thermal, or fast batch system.

Normally, processing parameters such as times and temperatures will not lend patentability to inventions absent the showing of unexpected results. Furthermore, the examiner, as in the office action mailed 11-1-01 takes official notice that the above systems are well known in the art and would be obvious to use for the process of Wang

Art Unit: 2812

et al.. For example, a batch apparatus allows for a higher throughput, and RTP or fast ramp systems allow for a minimal thermal budget.

Claims 7-10, 22-25, and 37-40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wang et al. as applied to claims 3-5, 11-14, 18-20, 26-29, 33-35, and 41-44 above, and further in view of Neely et al., U.S. Patent 5,443,863.

Wang et al. is applied as above but lacks anticipation of forming the second oxide layer through photoexcitation or using ozone in a microwave environment.

Neely et al. is applied as in the office action mailed 11-1-01 for the reasons of record.

Response to Arguments

Applicant's arguments with respect to claim 5-8-02 have been considered but are moot in view of the new ground(s) of rejection.


Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Richard A. Booth whose telephone number is 308-3446. The examiner can normally be reached on Monday-Thursday from 7:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Niebling can be reached on 308-3325. The fax phone numbers for the organization where this application or proceeding is assigned are 308-7724 for regular communications and 308-7724 for After Final communications.

Art Unit: 2812

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 308-1782.



Richard A. Booth
Primary Examiner
Art Unit 2812